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RAW SEQUENCE LISTING DATE: 03/20/2003
PATENT APPLICATION: **US/09/834,434** TIME: 16:03:00

Input Set : **A:\31234006.app**
Output Set: **N:\CRF4\03202003\I834434.raw**

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  3 <110> APPLICANT: EMALFARB, MARK A.
  4       PUNT, PETER J.
  5       VAN ZEIJL, CORNELIA
  6       VAN DEN HONDEL, CORNELIUS
  8 <120> TITLE OF INVENTION: HIGH-THROUGHPUT SCREENING OF EXPRESSED DNA LIBRARIES IN
  9       FILAMENTOUS FUNGI
 11 <130> FILE REFERENCE: 3123-4006
 13 <140> CURRENT APPLICATION NUMBER: 09/834,434
C--> 14 <141> CURRENT FILING DATE: 2003-03-13
 16 <150> PRIOR APPLICATION NUMBER: PCT/US00/10199
 17 <151> PRIOR FILING DATE: 2000-04-13
 19 <160> NUMBER OF SEQ ID NOS: 6
 21 <170> SOFTWARE: PatentIn Ver. 2.1
 23 <210> SEQ ID NO: 1
 24 <211> LENGTH: 1578
 25 <212> TYPE: DNA
 26 <213> ORGANISM: Aspergillus niger
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 30 tttaattgga atctgtatat tttcagatgg agtcaacttt tgaatggcca atatatcctc 120
 31 ggcgataccg tcggagataa gataagaata atcgcacact attcccaaag catactggta 180
 32 catactgcat tcggctagtg cggggtgctt acctcatcca cccgaatgag cccaactttt 240
 33 ttgtctcaat caataattgc atccaaattc ccccgcaact tccccctcca accccgtgtc 300
 34 tataccactc cctccacacc cacacaatca caatggctct ccctgcctac aagaccgcct 360
 35 tcctggagtc tctcgtcggc caacgtgctg actttcggca ccttcaccct gaagtcgggt 420
 36 cgccgtgcgt caccctcca acaccggcat tatcgcaatc ggaagactta ccactgtata 480
 37 cagactcccc ctacttcttc aacgccggca tcttcaacac cgcctctctc ctctccgccc 540
 38 tctccaccat ggcccacacc atcatcacct tcctcgctga gaacccttcc atccccaagc 600
 39 ccgacgtcat gcttcgggta aaaaaccccc tctttcccca ataccccact tccactcaac 660
 40 aacccataaa taactaacaa aaacccccta aacagccccg catacaaagg catccccctc 720
 41 gcgtgcgcca ccctccttga actcaaccgc atcgaccccg ccacctgggg cagcgtgtcc 780
 42 tacagctaca accgcaaaga agccaaggat cacggcgaag gcggcaacat tgtcggcgcc 840
 43 gctctgaagg gcaagaccgt gcttgtgatc gacgatgtca tcacggccgg taccgccatg 900
 44 cgtgagaccc tcaacctggt cgccaaggag ggcggcaagg tcgtcggatt cactgttgct 960
 45 ctggaccgct tggagaagat gcccggaccc aaggacgaga acggtgtcga ggacgataag 1020
 46 cccagaatga gtgctatggg tcagatccgt aaggagtatg gtgtgcccac gacgagtatt 1080
 47 gttactctgg atgatttgat caagttgatg caggcgaagg gcaatgaggc cgatatgaag 1140
 48 cggttggagg agtatagggc taagtatcag gctagtgatt agtcggtttc attgaccgat 1200
 49 tgtttgggtg ggtgtgagag gttaggttag gttgtgggcg taggaatgaa aagctgtata 1260
 50 cataggggcc tgaagaggtg cgtagagacg gtcgtgagat gttttatgtc aaaatcttga 1320
 51 acaaatgaca ccttaaaaaa gacccccttgg tttcagctga attagcccgg aaagatgctc 1380
 52 ggcacgccat gagtctagcc cactcagtgg gcacccgttt cccacatttg aagtggccga 1440
 53 cgcttatttg gctgaggctg tggcctggaa aggcactatg gcgtgctgcg gtacaaggcc 1500
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54 ggggctggcg tacgaaccac gacgcccgaa gggaactctt cggtcttact actactatgt 1560
55 ccccagttga ccccccga                                               1578
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59 <211> LENGTH: 512
60 <212> TYPE: PRT
61 <213> ORGANISM: Aspergillus niger
63 <400> SEQUENCE: 2
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65   1               5                  10                  15
67 Gly Phe Asn Trp Asn Leu Tyr Ile Phe Arg Trp Ser Gln Leu Leu Asn
68              20                  25                  30
70 Gly Gln Tyr Ile Leu Gly Asp Thr Val Gly Asp Lys Ile Arg Ile Ile
71          35                  40                  45
73 Ala His Tyr Ser Gln Ser Ile Leu Val His Thr Ala Phe Gly Cys Gly
74      50                  55                  60
76 Val Leu Thr Ser Ser Thr Arg Met Ser Pro Thr Phe Leu Ser Gln Ser
77  65                  70                  75                  80
79 Ile Ile Ala Ser Lys Phe Pro Arg Asn Phe Pro Leu Gln Pro Arg Val
80                  85                  90                  95
82 Tyr Thr Thr Pro Ser Thr Pro Thr Gln Ser Gln Trp Leu Ser Leu Pro
83             100                 105                 110
85 Thr Arg Pro Pro Ser Trp Ser Leu Ser Ser Ala Asn Val Leu Thr Phe
86         115                 120                 125
88 Gly Thr Phe Thr Leu Lys Ser Gly Arg Arg Ala Ser Pro Leu Gln His
89     130                 135                 140
91 Arg His Tyr Arg Asn Arg Lys Thr Tyr His Cys Ile Gln Thr Pro Pro
92 145                 150                 155                 160
94 Thr Ser Ser Thr Pro Ala Ser Ser Thr Pro Pro Leu Ser Ser Pro Pro
95                 165                 170                 175
97 Ser Pro Pro Trp Pro Thr Pro Ser Ser Pro Ser Ser Leu Arg Thr Leu
98             180                 185                 190
100 Pro Ser Pro Ser Pro Thr Ser Cys Phe Gly Lys Thr Pro Ser Phe Pro
101         195                 200                 205
103 Asn Thr Pro Leu Pro Leu Asn Asn Pro Ile Thr Asn Lys Asn Pro Leu
104     210                 215                 220
106 Asn Ser Pro Ala Tyr Lys Gly Ile Pro Leu Ala Cys Ala Thr Leu Leu
107 225                 230                 235                 240
109 Glu Leu Asn Arg Ile Asp Pro Ala Thr Trp Gly Ser Val Ser Tyr Ser
110                 245                 250                 255
112 Tyr Asn Arg Lys Glu Ala Lys Asp His Gly Glu Gly Gly Asn Ile Val
113             260                 265                 270
115 Gly Ala Ala Leu Lys Gly Lys Thr Val Leu Val Ile Asp Asp Val Ile
116         275                 280                 285
118 Thr Ala Gly Thr Ala Met Arg Glu Thr Leu Asn Leu Val Ala Lys Glu
119     290                 295                 300
121 Gly Gly Lys Val Val Gly Phe Thr Val Ala Leu Asp Arg Leu Glu Lys
122 305                 310                 315                 320
124 Met Pro Gly Pro Lys Asp Glu Asn Gly Val Glu Asp Asp Lys Pro Arg
125                 325                 330                 335
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Input Set : **A:\31234006.app**
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 127 Met Ser Ala Met Gly Gln Ile Arg Lys Glu Tyr Gly Val Pro Thr Thr
 128             340                 345                 350
 130 Ser Ile Val Thr Leu Asp Asp Leu Ile Lys Leu Met Gln Ala Lys Gly
 131         355                 360                 365
 133 Asn Glu Ala Asp Met Lys Arg Leu Glu Glu Tyr Arg Ala Lys Tyr Gln
 134     370                 375                 380
 136 Ala Ser Asp Ser Val Ser Leu Thr Asp Cys Leu Gly Gly Cys Glu Arg
 137 385                 390                 395                 400
 139 Leu Gly Val Val Gly Val Gly Met Lys Ser Cys Ile His Arg Gly Leu
 140                 405                 410                 415
 142 Lys Arg Cys Val Glu Thr Val Val Arg Cys Phe Met Ser Lys Ser Thr
 143             420                 425                 430
 145 Asn Asp Thr Leu Lys Lys Thr Pro Trp Phe Gln Leu Asn Pro Gly Lys
 146         435                 440                 445
 148 Met Leu Gly Thr Pro Val Pro Thr Gln Trp Ala Pro Val Ser His Ile
 149     450                 455                 460
 151 Ser Gly Arg Arg Leu Phe Gly Gly Cys Gly Leu Glu Arg His Tyr Gly
 152 465                 470                 475                 480
 154 Val Leu Arg Tyr Lys Ala Gly Ala Gly Val Arg Thr Thr Thr Pro Glu
 155                 485                 490                 495
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 158             500                 505                 510
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 162 <211> LENGTH: 495
 163 <212> TYPE: PRT
 164 <213> ORGANISM: Aspergillus niger
 166 <400> SEQUENCE: 3
 167 Gly Cys Glu Gly Val Ser Gly Asn Val Tyr Trp Asp Gly Leu Leu Gly
 168   1               5                  10                  15
 170 Leu Ile Gly Ile Cys Ile Phe Ser Asp Gly Val Asn Phe Met Ala Asn
 171              20                  25                  30
 173 Ile Ser Ser Ala Ile Pro Ser Glu Ile Arg Glu Ser His Thr Ile Pro
 174          35                  40                  45
 176 Lys Ala Tyr Trp Tyr Ile Leu His Ser Ala Ser Ala Gly Cys Leu Pro
 177      50                  55                  60
 179 His Pro Pro Glu Ala Gln Leu Phe Cys Leu Asn Gln Leu His Pro Asn
 180  65                  70                  75                  80
 182 Ser Pro Ala Thr Ser Pro Ser Asn Pro Val Ser Ile Pro Leu Pro Pro
 183                  85                  90                  95
 185 His Pro His Asn His Asn Gly Ser Pro Cys Leu Gln Asp Arg Leu Pro
 186             100                 105                 110
 188 Gly Val Ser Arg Arg Pro Thr Cys Leu Ser Ala Pro Ser Pro Ser Arg
 189         115                 120                 125
 191 Val Ala Val Arg His Pro Ser Asn Thr Gly Ile Ile Ala Ile Gly Arg
 192     130                 135                 140
 194 Leu Thr Thr Val Tyr Arg Leu Pro Leu Leu Leu Gln Arg Arg His Leu
 195 145                 150                 155                 160
 197 Gln His Arg Leu Ser Pro Leu Arg Pro Leu His His Gly Pro His His
 198                 165                 170                 175
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Input Set : **A:\31234006.app**
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```
200 His His Leu Pro Arg Glu Pro Phe His Pro Gln Ala Arg Arg His Ala
201             180                 185                 190
203 Ser Gly Lys Lys Pro Pro Leu Ser Pro Ile Pro His Phe His Ser Thr
204         195                 200                 205
206 Thr His Lys Leu Thr Lys Thr Pro Thr Ala Pro His Thr Lys Ala Ser
207     210                 215                 220
209 Pro Ser Arg Ala Pro Pro Ser Leu Asn Ser Thr Ala Ser Thr Pro Pro
210 225                 230                 235                 240
212 Pro Gly Ala Ala Cys Pro Thr Ala Thr Thr Ala Lys Lys Pro Arg Ile
213                 245                 250                 255
215 Thr Ala Lys Ala Ala Thr Leu Ser Ala Pro Leu Arg Ala Arg Pro Cys
216             260                 265                 270
218 Leu Ser Thr Met Ser Ser Arg Pro Val Pro Pro Cys Val Arg Pro Ser
219         275                 280                 285
221 Thr Trp Ser Pro Arg Arg Ala Ala Arg Ser Ser Asp Ser Leu Leu Leu
222     290                 295                 300
224 Trp Thr Ala Trp Arg Arg Cys Pro Asp Pro Arg Thr Arg Thr Val Ser
225 305                 310                 315                 320
227 Arg Thr Ile Ser Pro Glu Val Leu Trp Val Arg Ser Val Arg Ser Met
228                 325                 330                 335
230 Val Cys Pro Arg Arg Val Leu Leu Leu Trp Met Ile Ser Ser Cys Arg
231             340                 345                 350
233 Arg Arg Ala Met Arg Pro Ile Ser Gly Trp Arg Ser Ile Gly Leu Ser
234         355                 360                 365
236 Ile Arg Leu Val Ile Ser Arg Phe His Pro Ile Val Trp Val Gly Val
237     370                 375                 380
239 Arg Gly Val Arg Leu Trp Ala Glu Lys Ala Val Tyr Ile Gly Ala Arg
240 385                 390                 395                 400
242 Gly Ala Arg Arg Ser Asp Val Leu Cys Gln Asn Leu Glu Gln Met Thr
243                 405                 410                 415
245 Pro Lys Arg Pro Leu Gly Phe Ser Ile Ser Pro Glu Arg Cys Ser Ala
246             420                 425                 430
248 Arg His Glu Ser Ser Pro Leu Ser Gly His Pro Phe Pro Thr Phe Glu
249         435                 440                 445
251 Val Ala Asp Ala Tyr Leu Ala Glu Ala Val Ala Trp Lys Gly Thr Met
252     450                 455                 460
254 Ala Cys Cys Gly Thr Arg Pro Gly Leu Ala Tyr Glu Pro Arg Arg Pro
255 465                 470                 475                 480
257 Lys Gly Thr Leu Arg Ser Tyr Tyr Tyr Tyr Val Pro Ser Pro Pro
258                 485                 490                 495
261 <210> SEQ ID NO: 4
262 <211> LENGTH: 509
263 <212> TYPE: PRT
264 <213> ORGANISM: Aspergillus niger
266 <400> SEQUENCE: 4
267 Val Asn Val Lys Ala Leu Val Val Met Tyr Ile Asn Gly Glu Met Gly
268   1               5                  10                  15
270 Phe Asp Trp Val Leu Glu Ser Val Tyr Phe Gln Met Glu Ser Thr Phe
271             20                  25                  30
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```
273 Glu Trp Pro Ile Tyr Pro Arg Arg Tyr Arg Arg Arg Asp Lys Asn Asn
274          35                  40                  45
276 Arg Thr Leu Phe Pro Lys His Thr Gly Thr Tyr Cys Ile Arg Leu Val
277      50                  55                  60
279 Arg Gly Ala Tyr Leu Ile His Pro Asn Glu Pro Asn Phe Phe Val Ser
280  65                  70                  75                  80
282 Ile Asn Asn Cys Ile Gln Ile Pro Pro Gln Leu Pro Pro Pro Thr Pro
283                  85                  90                  95
285 Cys Leu Tyr His Ser Leu His Thr His Thr Ile Thr Met Ala Leu Pro
286             100                 105                 110
288 Ala Tyr Lys Thr Ala Phe Leu Glu Ser Leu Val Gly Gln Arg Ala Asp
289         115                 120                 125
291 Phe Arg His Leu His Pro Glu Val Gly Ser Pro Cys Val Thr Pro Pro
292     130                 135                 140
294 Thr Pro Ala Leu Ser Gln Ser Glu Asp Leu Pro Leu Tyr Thr Asp Ser
295 145                 150                 155                 160
297 Pro Tyr Phe Phe Asn Ala Gly Ile Phe Asn Thr Ala Ser Leu Leu Ser
298                 165                 170                 175
300 Ala Leu Ser Thr Met Ala His Thr Ile Ile Thr Phe Leu Ala Glu Asn
301             180                 185                 190
303 Pro Ser Ile Pro Lys Pro Asp Val Met Leu Arg Val Lys Asn Pro Leu
304         195                 200                 205
306 Phe Pro Gln Tyr Pro Thr Ser Thr Gln Gln Pro Ile Asn Asn Gln Lys
307     210                 215                 220
309 Pro Pro Lys Gln Pro Arg Ile Gln Arg His Pro Pro Arg Val Arg His
310 225                 230                 235                 240
312 Pro Pro Thr Gln Pro His Arg Pro Arg His Leu Gly Gln Arg Val Leu
313                 245                 250                 255
315 Gln Leu Gln Pro Gln Arg Ser Gln Gly Ser Arg Arg Arg Arg Gln His
316             260                 265                 270
318 Cys Arg Arg Arg Ser Glu Gly Gln Asp Arg Ala Cys Asp Arg Arg Cys
319         275                 280                 285
321 His His Gly Arg Tyr Arg His Ala Asp Pro Gln Pro Gly Arg Gln Gly
322     290                 295                 300
324 Gly Arg Gln Gly Arg Arg Ile His Cys Cys Ser Gly Pro Leu Gly Glu
325 305                 310                 315                 320
327 Asp Ala Arg Thr Gln Gly Arg Glu Arg Cys Arg Gly Arg Ala Gln Asn
328                 325                 330                 335
330 Glu Cys Tyr Gly Ser Asp Pro Gly Val Trp Cys Ala His Asp Glu Tyr
331             340                 345                 350
333 Cys Tyr Ser Gly Phe Asp Gln Val Asp Ala Gly Glu Gly Gln Gly Arg
334         355                 360                 365
336 Tyr Glu Ala Val Gly Gly Val Gly Val Ser Gly Leu Val Gly Phe Ile
337     370                 375                 380
339 Asp Arg Leu Phe Gly Trp Val Glu Val Arg Leu Gly Cys Gly Arg Arg
340 385                 390                 395                 400
342 Asn Glu Lys Leu Tyr Thr Gly Pro Glu Glu Val Arg Arg Asp Gly Arg
343                 405                 410                 415
345 Glu Met Phe Tyr Val Lys Ile Leu Asn Lys His Leu Lys Lys Asp Pro
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